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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,270	07/08/2003	Chuen-Ru Lee	9173-US-PA	1269

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JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
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TAIWAN

EXAMINER

JONES, HUGH M

ART UNIT PAPER NUMBER

2128

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,270

Applicant(s)

LEE ET AL.

Examiner

Hugh Jones

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-20 of U. S. Application 10/604,270, filed 7/8/2003, are pending.

Specification

2. A substitute specification *including the claims* in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

3. A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method and

system must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. The drawings are also objected to under 37 CFR 1.83(a) because they fail to show the structural details, including the geometric relationships, of the liquid crystal device, as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The issue is as follows. Due to the idiomatic and grammatical issues associated with the specification and claims, it is difficult to determine the unambiguous meaning of the claims. For example, the word "gap" is frequently used in the specification and claims. The accepted meaning of the word in the art pertains to the distance between the two pieces of glass encasing the LCD device. It appears that Applicants might be using the word to refer to the distance between "cells" instead of within cells. However, since there are no drawings showing structural details, it is impossible to unambiguously determine the device geometry and hence the meaning of the claims. Furthermore, the claims are not in standard US format. For example, consider claim 19:

"A system for designing a liquid crystal module for designing a prototype of a product,

the system includes a data base, wherein color characteristic parameters relating to a plurality of liquid crystal film, to a plurality of color filter film, to a plurality of testing modules, and to a plurality of standard module are stored therein,

the system includes a method comprising the steps of:

based upon data relating to a plurality of liquid crystal cell gaps and their respective viewing angle,

providing an expression of the relationships between the viewing angles and cell gaps, and

deriving a range of the cell gaps;

based upon data relating to a plurality of panel transmittance and their respective color gamut,

providing an expression of the relationships between the plurality of panel transmittance and their respective color gamut, and deriving at least one cell gap value;

based upon data relating to the plurality of color filter films and testing modules, providing a set of expressions of relationships including the relationship of color filter film thickness with color filter characteristics, the relationship of color filter characteristics with liquid crystal testing module, and

determining color filter standard and product standard based upon the above relationship; and

correcting product color characteristics based upon the ratio of measured value with modeling value.”

8. The use of transitional phrases in certain parts of the claim and lack of use of said phrases in other parts of the claims, as well as a lack of indentation of each limitation, makes it impossible to determine the meaning of the claim. There is no transitional phrase after “of a product” (the preamble); there are multiple uses of the word “and” (as in the two limitations before the last limitation). Many of the limitations directed at steps have an inverted sentence structure and begin with “based upon”; it is difficult to determine what steps are associated with each “based upon”. For example, consider the third to last limitation of the claim (based upon data relating to the plurality of color filter films and testing modules, providing a set of expressions of relationships including the relationship of color filter film thickness with color filter characteristics, the relationship of color filter characteristics with liquid crystal testing module, and). It is not clear whether the either or both of the next limitations (determining color filter standard and product standard based upon the above relationship; and correcting product color characteristics based upon the ratio of measured value with modeling value.) are subject to the same constraint (“based upon”) or are limitations directed at completely independent steps.

Claim Objections

9. Claim 14 is objected to because of the following informalities: the claim refers to equation 2. The equation should be expressly recited in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claim 1-16, 19-20 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter since the claims are drawn to an abstract mathematical algorithm or disembodied program steps and are not tangible.

- Analysis of claims 1-16 indicates that the method appears to require a computer, which has not been claimed. Thus, the steps appear to be disembodied program steps and are not statutory. The claims are not tangible.
- Analysis of claims 19-20 indicates that "system" or "system" is broad enough to include nonstatutory examples. The "data base" may also be mere software and broad enough to be nonstatutory.

The Examiner submits that the claims as written, are merely drawn to nonstatutory descriptive material since the claimed algorithm or program steps does not impart any functionality (let alone be stored on a tangible medium)). (i.e. not a computer

program product or executable instructions embodied on a computer-readable medium).

Analysis of the claim indicates that the claims are drawn to an algorithm or disembodied computer program steps and are not tangible. The claims are merely drawn to rearranging and forming subsets of numbers.

12. *MPEP 2106 recites the following supporting rational for this reasoning:*

"Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."

13. *In this case, applicants have merely claimed an abstract algorithm or*

disembodied program steps that are not embodied on a computer-readable medium

and specifically employed as a computer component to be executed on a processor and perform the claimed limitations. Thus, Applicants have attempted to claim nonfunctional descriptive material.

14. An invention which is eligible for patenting under 35 U.S.C. 101 is in the useful arts when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. *The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a "useful, concrete and tangible result."* The test for practical application as applied by the

examiner involves the determination of the following factors:

(1) Useful - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

(a) the utility need not be expressly recited in the claims, rather it may be inferred.

(b) if the utility is not asserted in the written description, then it must be well established.

15. Furthermore, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(2) Tangible - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized.

(3) Concrete - Another consideration is whether the invention produces a concrete result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of

enablement rejection, because the invention cannot operate as intended without undue experimentation.

16. A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan (discussed in i) below), or (B) be limited to a practical application within the technological arts (discussed in ii) below). See *Diamond v. Diehr*, 450 U.S. at 183-84, 209 USPQ at 6 (quoting *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1877)) ("A [statutory] process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.... The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."). See also *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting *Diamond v. Diehr*, 450 U.S. at 192, 209 USPQ at 10). See also *id.* at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical applications") (citing *O'Reilly v. Morse*, 56 U.S. (15 How.) at 114-19). If a physical transformation occurs outside the computer, a disclosure that permits a skilled artisan to practice the claimed invention, i.e., to put it to a practical use, is sufficient. On the other hand, it is necessary for the claimed invention taken as a whole to produce a practical

application if there is only a transformation of signals or data inside a computer or if a process merely manipulates concepts or converts one set of numbers into another.

17. The claims merely recite an algorithm or disembodied program steps. The claims are not tangible.

18. Claims 17-18 are statutory because the system is claimed as a *tangible* physical system as a consequence of the "means for" claim structure.

Claim Rejections - 35 USC § 112

19. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

20. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

21. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

22. As explained earlier, the issue is as follows. Due to the idiomatic and grammatical issues associated with the specification and claims, it is difficult to determine the unambiguous meaning of the claims. For example, the word "gap" is frequently used in the specification and claims. The accepted meaning of the word in the art pertains to the distance between the two pieces of glass encasing the LCD device. It appears that Applicants might be using the word to refer to the distance

between "cells" instead of within cells. However, since there are no drawings showing structural details, it is impossible to unambiguously determine the device geometry and hence the meaning of the claims. Furthermore, the claims are not in standard US format. For example, consider claim 19:

"A system for designing a liquid crystal module for designing a prototype of a product,

the system includes a data base, wherein color characteristic parameters relating to a plurality of liquid crystal film, to a plurality of color filter film, to a plurality of testing modules, and to a plurality of standard module are stored therein,

the system includes a method comprising the steps of:

based upon data relating to a plurality of liquid crystal cell gaps and their respective viewing angle,

providing an expression of the relationships between the viewing angles and cell gaps, and

deriving a range of the cell gaps;

based upon data relating to a plurality of panel transmittance and their respective color gamut,

providing an expression of the relationships between the plurality of panel transmittance and their respective color gamut, and deriving at least one cell gap value;

based upon data relating to the plurality of color filter films and testing modules, providing a set of expressions of relationships including the relationship of color filter film thickness with color filter characteristics, the relationship of color filter characteristics with liquid crystal testing module, and

determining color filter standard and product standard based upon the above relationship; and

correcting product color characteristics based upon the ratio of measured value with modeling value."

23. The use of transitional phrases in certain parts of the claim and lack of use of said phrases in other parts of the claims, as well as a lack of indentation of each limitation, makes it impossible to determine the meaning of the claim. There is no transitional phrase after "of a product" (the preamble); there are multiple uses of the word "and" (as in the two limitations before the last limitation). Many of the limitations directed at steps have an inverted sentence structure and begin with "based upon"; it is difficult to determine what steps are associated with each "based upon". For example, consider the third to last limitation of the claim (based upon data relating to the plurality of color filter films and testing modules, providing a set of expressions of relationships including the relationship of color filter film thickness with color filter characteristics, the relationship of color filter characteristics with liquid crystal testing module, and). It is not clear whether the either or both of the next limitations (determining color filter standard and product standard based upon the above relationship; and correcting product color characteristics based upon the ratio of measured value with modeling value.) are subject to the same constraint ("based upon") or are limitations directed at completely independent steps.

24. In another example, it is impossible to determine the metes and bounds of claim 11, and where one limitation begins and another ends. There are no indentations for each limitation. This is compounded by the fact that this is a "method" claim but contains limitations for a "system".

Claim Interpretation

25. Recitations following words such as *suitable* are provided no patentable weight.

No Prior Art Rejection

26. No prior art rejection is applied because it would require considerable speculation regarding the meaning of the claims, for the reasons provided earlier.

27. As per the MPEP; see *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970) (if no reasonably definite meaning can be ascribed to certain claim language, the claim is indefinite, not obvious) and *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962) (it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions).

Prior Art Search

28. Nevertheless, the following prior art has been obtained following a search of the art. Note that there is much theoretical as well as engineering research pertaining to the design and manufacture of LCD devices for a variety of purposes. Much of the claimed invention appears to relate to routine engineering experimentation in the design of standard LCD devices. The courts have held that a reference anticipates a claim if it discloses the claimed invention such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention. *In re Graves*, 36 USPQ2d 1697 (Fed. Cir. 1995); *In re Sase*, 207 USPQ 107

(CCPA 1980); *In re Samour*, 197 USPQ 1 (CCPA 1978). In view of this, please consider the following prior art:

- Anom; What is a liquid crystal display? From www.lxdinc.com/AppNotes/cross.htm; pp. 1-2; 2003.
- Lien et al.; Thickness and angular dependency of color change in Tn LCDs; pp. 138-149; Proc. SPIE; 1990.
- Hermanns et al.; Effect of thickness on electroclinic liquid crystal response time; pp. 73-80; Proc. SPIE; 1998.
- Takano et al.; Cell design of gray-scale thin-film transistor driven liquid crystal displays; pp. 23-42; IBM J. Research and Develop.; 1992.

29. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to: Dr. Hugh Jones telephone number (571) 272-3781,
Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.
Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

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or faxed to:

(703) 308-9051 (for formal communications intended for entry)

Art Unit: 2128

or (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

July 7, 2006

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